

WHAT IS CLAIMED IS:

1. A method for determining transmission power of a second TFCI (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel in a mobile communication system including a UE (User Equipment) existing in a handover region for a plurality of Node Bs, comprising the steps of:

transmitting dedicated channel data of the Node Bs including a first TFCI bit indicating transport format information of the dedicated channel data transmitted to the UE over dedicated channels, wherein at least a selected Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared channel data over the downlink shared channel; and

determining a transmission power level of the second TFCI bit of the selected Node B to be higher than a ratio of transmission power of the first TFCI bit from Node Bs transmitting only the dedicated channel data .

2. The method as claimed in claim 1, wherein the transmission power of the second TFCI bit is determined based on a number of Node Bs in an active set.

3. The method as claimed in claim 1, wherein the transmission power of the second TFCI bit is determined based on a type of the Node Bs in an active set .

4. The method as claimed in claim 1, wherein the transmission power of the second TFCI bit is determined based on a number and a type of the Node Bs in an active set.

5. The method as claimed in claim 1, wherein the second TFCI bit

is transmitted using a site selection diversity (SSDT) signal.

6. A method for determining transmission power of a second TFCI (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel in a mobile communication system including a UE (User Equipment) existing in a handover region for a plurality of Node Bs, comprising the steps of:

transmitting dedicated channel data of the Node Bs including a first TFCI bit to the UE over dedicated channels, wherein at least a selected Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared channel data over the downlink shared channel;

determining a power offset for the transmission power of the second TFCI bit of the selected Node B to be higher than a ratio of transmission power of the first TFCI bit from Node Bs transmitting only the dedicated channel data; and

transmitting the power offset to the selected Node B

7. The method as claimed in claim 6, wherein the power offset of the second TFCI bit is determined based on a number of the Node Bs in an active set.

8. The method as claimed in claim 6, wherein the power offset of the second TFCI bit is determined based on a type of the Node Bs in an active set.

9. The method as claimed in claim 6, wherein the power offset of the second TFCI bit is determined based on CPICHs (Common Pilot Channels) of the Node Bs in an active set.

10. The method as claimed in claim 6, wherein the power offset of the second TFCI bit is determined based on a type, a number and CPICHs (Common Pilot Channels) of the Node Bs in an active set.

11. The method as claimed in claim 6, wherein the power offset is
5 transmitted using a feedback information (FBI) field.

12. The method as claimed in claim 11, wherein the power offset is transmitted over the feedback information (FBI) field using a site selection diversity (SSDT) signal.

10

13. The method as claimed in claim 11, wherein the feedback information (FBI) field is comprised of an S field and a D field.

14. A method for determining transmission power of a second TFCI
15 (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel in a mobile communication system including a UE (User Equipment) existing in a handover region for a plurality of Node Bs comprising the steps of:

transmitting dedicated channel data of the Node Bs including a first
20 TFCI bit indicating transport format information of the dedicated channel data transmitted to the UE over dedicated channels, wherein at least a selected Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared channel data over the downlink shared channel;

25 determining a power offset for the second TFCI larger in level than transmission power of the first TFCI bit according to a number of active sets of the UE; and

transmitting the determined power offset to the first Node B.

30 15. The method as claimed in claim 14, wherein the power offset for

the selected Node B is transmitted using an NBAP (Node B Application Part) message.

16. The method as claimed in claim 15, wherein the power offset
5 uses a Radio Link Reconfiguration message among the NBAP messages.

17. The method as claimed in claim 15, wherein the power level
offset uses a Radio Link Setup message among the NBAP messages.

10 18. A UE apparatus for determining transmission power of a second
TFCI (Transmit Format Combination Indicator) bit indicating transport format
information of data on a downlink shared channel transmitted from a selected
Node B to a UE (User Equipment) in a mobile communication system including
the UE existing in a handover zone and a plurality of Node Bs in an active set
15 indicating Node Bs capable of communicating with the UE, wherein the Node Bs
transmit dedicated channel data including a first TFCI bit to the UE over
dedicated channels, wherein the selected Node B among the Node Bs transmits
dedicated channel data including the first TFCI bit and the second TFCI bit over
a dedicated channel and transmits downlink shared channel data over the
20 downlink shared channel, wherein a dedicated channel frame from the selected
Node B has a plurality of time slots, each of the time slots including a
transmission data field and a TFCI field indicating transport format information
of the transmission data, each of the TFCI fields including a first field where the
first TFCI bit indicating transport format information of the dedicated channel
25 data transmitted over the dedicated channels is located and a second field where
the second TFCI bit indicating transport format information of the downlink
shared channel data transmitted over the dedicated shared channel is located, the
apparatus comprising:

a plurality of common channel pilot estimators for estimating levels of
30 common channel pilot signals received from the Node Bs in the active set; and

a downlink transmission power control command generator for determining a transmission power offset of the second TFCI bit using the measured levels of the common channel pilot signals, provided from the common channel pilot estimators.

5

19. The apparatus as claimed in claim 18, wherein the downlink transmission power control command generator transmits the power offset over an FBI field.

10

20. The apparatus as claimed in claim 19, wherein the power offset is transmitted over the FBI field using an SSDT signal.

21. The apparatus as claimed in claim 19, wherein the FBI field is comprised of an S field and a D field.

15

22. The apparatus as claimed in claim 18, further comprising a transmitter for transmitting the FBI field.

23. A method for determining transmission power of a second TFCI
20 (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel transmitted from a selected Node B to a UE (User Equipment) in a mobile communication system including the UE existing in a handover region and a plurality of Node Bs in an active set indicating Node Bs capable of communicating with the UE, comprising the steps
25 of:

the Node Bs transmitting dedicated channel data including a first TFCI bit to the UE over dedicated channels, wherein a first Node B among the Node Bs transmits dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared channel data
30 over the downlink shared channel; and

the first Node B determining a transmission power level of the second TFCI bit to be higher than a ratio of transmission power of the dedicated channel data from a Node B transmitting only the dedicated channel data to transmission power of the first TFCI bit;

- 5 wherein a dedicated channel frame from the first Node B has a plurality of time slots, each of the time slots including a transmission data field and a TFCI field indicating transport format information of the transmission data, each of the TFCI fields including a first field where the first TFCI bit indicating transport format information of the dedicated channel data transmitted over the
- 10 dedicated channels is located and a second field where the second TFCI bit indicating transport format information of the downlink shared channel data transmitted over the dedicated shared channel is located.

24. A method for determining transmission power of a second TFCI
- 15 (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel transmitted from a selected Node B to a UE (User Equipment) in a mobile communication system including the UE existing in a handover zone and a plurality of Node Bs in an active set indicating Node Bs capable of communicating with the UE, comprising the steps
- 20 of:

the Node Bs transmitting dedicated channel data including a first TFCI bit to the UE over dedicated channels;

- a first Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and
- 25 transmitting downlink shared channel data over the downlink shared channel;
- and

- the UE determining a power offset of the second TFCI bit by comparing a sum of dedicated channel signals received from the Node Bs with reception power of the downlink shared channel and then transmitting the power offset to
- 30 the first Node B;

wherein a dedicated channel frame from the first Node B has a plurality of time slots, each of the time slots including a transmission data field and a TFCI field indicating transport format information of the transmission data, each of the TFCI fields including a first field where the first TFCI bit indicating transport format information of the dedicated channel data transmitted over the dedicated channels is located and a second field where the second TFCI bit indicating transport format information of the downlink shared channel data transmitted over the dedicated shared channel is located.

10 25. A method for determining transmission power of a second TFCI (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel transmitted from a selected Node B to a UE (User Equipment) in a mobile communication system including the UE existing in a handover zone and a plurality of Node Bs in an active set
15 indicating Node Bs capable of communicating with the UE, comprising the steps of:

the Node Bs transmitting dedicated channel data including a first TFCI bit to the UE over dedicated channels;

a first Node B among the Node Bs transmitting dedicated channel data
20 including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared channel data over the downlink shared channel; and

a controller of the first Node B determining a power offset larger in level than transmission power of the first TFCI bit according to a number of active sets
25 of the UE and transmitting the determined power offset to the first Node B;

wherein a dedicated channel frame from the first Node B has a plurality of time slots, each of the time slots including a transmission data field and a TFCI field indicating transport format information of the transmission data, each of the TFCI fields including a first field where the first TFCI bit indicating transport format information of the dedicated channel data transmitted over the
30

dedicated channels is located and a second field where the second TFCI bit indicating transport format information of the downlink shared channel data transmitted over the dedicated shared channel is located..

5 26. An apparatus for determining transmission power of a second TFCI (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel in a mobile communication system including a UE(User Equipment) existing in a handover region for a plurality of Node Bs, the apparatus comprising:

10 the Node Bs transmitting dedicated channel data including a first TFCI bit indicating transport format information of the dedicated channel data transmitted to the UE over dedicated channels, wherein at least a selected Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting
15 downlink shared channel data over the downlink shared channel; and

 the selected Node B determining a transmission power level of the second TFCI bit of the selected Node B to be higher than a ratio of transmission power of the first TFCI bit from Node Bs transmitting only the dedicated channel data.

20

 27. An apparatus for determining transmission power of a second TFCI (Transmit Format Combination Indicator) bit indicating transport format information of data on a downlink shared channel in a mobile communication system including a UE(User Equipment) existing in a handover region for a
25 plurality of Node Bs , , the apparatus comprising:

 the Node Bs transmitting dedicated channel data including a first TFCI bit to the UE over dedicated channels, wherein at least a selected Node B among the Node Bs transmitting dedicated channel data including the first TFCI bit and the second TFCI bit over a dedicated channel and transmitting downlink shared
30 channel data over the downlink shared channel; and

the UE determining a power offset for the transmission power of the second TFCI bit of the selected Node B to be higher than a ratio of transmission power of the first TFCI bit from Node Bs transmitting only the dedicated channel data and transmitting the power offset to the selected Node B.

678-771 (P9940)